WHAT IS CLAIMED IS:

1. A process for obtaining samples of analyzation from a cascade impactor comprising providing a plurality of impactor components having impaction surfaces carrying particles that have been classified, supporting the plurality of impactor components in a support, such that the impactor surfaces are enclosed, injecting a solvent solution into each of the enclosures containing an impactor surface, agitating the solvent applied by moving the support so that a plurality of the impactor surfaces are agitated simultaneously, and removing a desired amount of liquid for a sample from each enclosure.

2. The method of claim 1, including transferring the samples to vials for an analyzation instrument.

3. The method of claim 1, including agitating the solvent by rocking the support for the plurality of impactor surfaces.

4. The method of claim 3, including washing the plurality of impaction surfaces simultaneously in a support.

5. The method of claim 4, including drying the plurality of impaction surfaces simultaneously with a flow of gas.

6. A method of cleaning a plurality of impactor components having impaction surfaces which are

enclosed, including providing a manifold for injecting liquid into an enclosure, including the impaction surfaces, draining the liquid after washing, and providing a drying fluid to the enclosure for a plurality of such impaction surfaces simultaneously while held in a common carrier.

7. The method of claim 6, wherein the impaction surfaces are part of a cup shaped component, and sealing the cup shaped device relative to a manifold carrying ducts for introducing liquid, providing a drain, and introducing drying fluid.

8. The method of claim 6, including providing a manifold having passageways for liquid and gas leading to each of the impaction surfaces.

9. A method of obtaining samples from a plurality of impaction surfaces on which classified particles have been deposited, comprising supporting a plurality of the impaction surfaces in enclosed chambers on a common carrier, introducing a solvent into each of the enclosed chambers, agitating the solvent to dissolve particles held on the impaction surfaces, the carrier supporting a plurality of the impaction surfaces, and providing chambers for the impaction surfaces for the introduction of the solvent.

10. The method of claim 9, including removing a sample from each of the chambers held on the support.

11. The method of claim 10, and washing the plurality of chambers simultaneously while supported on a carrier.

12. The method of claim 9, wherein said chambers are formed by a cup having flanges around the edges thereof supported on the carrier, the impaction surfaces being on the interior of the cup, and providing a cover overlying the plurality of cups on the support, said cover having openings for introducing solvent and removing samples from the cups.

13. The method of claim 12, including sealing the periphery of each cup relative to the manifold.

14. The method of claim 12, including utilizing a syringe for introducing solvent into each of the chambers and removing samples subsequent to dissolution of particles in the solvent.

15. An apparatus for aiding in the dissolution of particles held on impaction surfaces, after the particles have been classified as to size in an impactor, comprising a support having a plurality of receptacles for receiving components having impaction surfaces carrying the particles, said support being mounted for movement, and the support having an overlying cover including openings for introducing a solvent to immerse each of the impaction surfaces.

16. The apparatus of claim 15, wherein said support holds individual impactor cups having

impaction surfaces on the interior thereof, and a clamp to clamp the cover against the cups in position in receptacles of the support.

17. The apparatus of claim 15, wherein each of the cups has a flange around the periphery thereof, a tray having openings to permit a majority of the cup to pass through the openings and support the cup on the flange, the support having openings in an upper surface for supporting the tray with the cups protruding into the openings of the support, the cover engaging the flanges of the cups and holding the cups, the tray and the support as a unit.

18. The apparatus of claim 17 and seals around the cups engaging the flange and sealing the cups relative to the cover.

19. The apparatus of claim 18, wherein the cover has a plenum chamber open to each of the cups.

20. A sample recovery station for recovering samples from a plurality of impactor surfaces having classified particles on the surfaces, comprising a support frame having a plurality of openings, a tray for supporting a plurality of cups with portions of the cups protruding from the plane of the tray, the support having a surface holding the tray with the cups in position in receptacles in the support, a manifold cover held relative to the support and including recesses overlying each of the cups, a vial holding bore formed in the manifold tray, and having an axis that is inclined relative to the plane of the

tray in a first direction, a connecting bore adjacent an edge of the recess in the manifold cover opening to the bore for the vial, and having a axis generally perpendicular to the axis of the bore, whereby rotating the support about a central axis causes the connecting passageway to drain the cups into the vial holding bores.

21. The sample recovery device of claim 20, wherein said manifold cover contains passageways for introduction of liquid into the recesses.

22. The sample recovery device of claim 20, wherein said manifold cover includes passageways for permitting discharge of gases and liquids from the recesses in the manifold cover, and passageways for permitting the introduction of a gas into the recesses of the manifold cover.

23. An apparatus for handling cup shaped impactor devices comprising a tray having openings for said cup impactor devices, said cup impactor devices having a body that fits through the openings and flanges that engage surface portions of the tray around the openings and prevent the entire cup from passing through the openings, the body of the cup extending through the tray.

24. The apparatus of claim 23, wherein said tray comprises a generally flat plate with the openings therethrough, and the flanges of the cups being supported on the flat plate.

25. The apparatus of claim 23 and a cover member for forming a manifold over said tray and cups, said cover member having a passageway that extends transversely across all of the cups, and openings from the passageway to each of the cups, the passageway being adapted to be fitted to a liquid cleaning material source.

26. The apparatus of claim 25, wherein said cover has a second passageway open to each of the cups on the tray, and the second passageway being connected to a source of a gaseous fluid.

27. The apparatus of claim 23 and a cover manifold for said tray comprising a plenum chamber individually open to each of the cups, and an opening above each of the cups for introducing a coating material, said tray being adapted to be rocked about a longitudinal axis with the coating material in place, and the plenum chamber being connected to a source of gaseous fluid for eliminating vapors from the coating material.

28. A method of processing particles held on impactor plates comprising selecting one of the methods of adding solvents consisting of manual pipetting and automatic pipetting; selecting one of the methods of dissolution of particles in the solvent comprising using one of the group consisting of gentle agitation, mechanical vibration, ultrasonic vibration recirculation, and direct contact rubbing; acquiring samples by one of the methods of sample acquisition consisting of a manual syringe, an automatic syringe,

or decanting liquid from the cup from the dissolved sample; and thereafter disposing of waste sample solutions, washing and drying the impactor plates.

29. The method of claim 28, including further coating the impactor plates with an anti-bounce coating by one of methods in the group consisting of manual pipetting, and automatic pipetting, followed by drying with a gaseous fluid.

30. The method of claim 28, wherein waste disposal is accomplished by one of the group consisting of manually dumping, automatically dumping, or sucking material from a chamber containing an impactor plate.

31. The method of claim 28, wherein said washing is accomplished by one of the group consisting of manual washing, or utilizing a special wash station having passageways for introducing liquid and discharging liquid, and passageways for air drying.

32. The method of claim 28, wherein drying comprising one of manual drying, hot air drying, and hot nitrogen enriched air drying.

33. A method of coating an impaction surface formed on the bottom wall of a cup comprising steps of adding a quantity of an anti-bounce coating material into the cup to cover the impaction surface, and providing a flow of drying fluid over the impaction surface to remove vapors from solvents in the coating.

34. The method of claim 33, including rocking the cup so the coating material flows across the impaction surface while drying.